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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional)	
<p>I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR</p> <p>on _____</p> <p>Signature _____</p> <p>Typed or printed name _____</p>		Application Number	Filed
		10/710,566	07/21/2004
		First Named Inventor	
		Kim	
		Art Unit	Examiner
		2811	Arena
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p>			
<p>I am the</p> <p><input type="checkbox"/> applicant/inventor.</p> <p><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)</p> <p><input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>33,138</u></p> <p><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____</p>		<p> Signature</p> <p><u>Marshall M. Curtis</u> Typed or printed name</p> <p><u>(703) 787-9400</u> Telephone number</p> <p><u>August 3, 2007</u> Date</p>	
<p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.</p>			

<input type="checkbox"/> *Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Deok-kee Kim et al.

Conf. No.: 4565

Serial No.: 10/710,566

Group Art Unit: 2811

Filed: July 21, 2004

Examiner: A. Arena

For: TOP-OXIDE-EARLY PROCESS AND ARRAY TOP OXIDE
PLANARIZATION

Mail Stop AF
Commissioner for Patents
United States Patent and Trademark Office
P. O. Box 1450
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ATTACHMENT TO PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

This Pre-Appeal Brief Request for Review is being concurrently filed in the USPTO with a Notice of Appeal. Applicant hereby petitions for a one-month extension of time to extend the date for response to August 3, 2007. If any additional fees are required to satisfy the fees due for the Notice of Appeal or to gain entry and consideration of this Pre-Appeal Brief Request for review, the Commissioner is authorized to charge any such additional fees to Deposit Account 09-0458 of International Business Machines Corporation (East Fishkill).

No amendments are submitted herewith. The Advisory Action mailed June 26, 2007, indicates that the Request for Reconsideration filed June 4, 2007, has been considered and should be entered in view of the concurrently filed Notice of Appeal.

The Invention

The invention was summarized in the remarks appended to the amendment filed June 4, 2007, as follows:

“The invention is basically directed to refinements in planarization techniques which reduce artifacts such as scratching,

dishing and contamination which may occur through chemical-mechanical polishing (CMP), particularly where large areas containing differentiated structures are presented when CMP is to be performed and which are not taught or suggested by Hummler.

“In regard to independent claim 1, for example, amendatory language was presented in the step of “reducing height of *structures* in said first and second areas” to recite the purpose and effect of the claimed height reduction of *structures*; specifically, “to *control step height* in said *first and second areas*”.”

More specifically, many current and foreseeable integrated circuit designs having a high density of integration often have differentiated areas where circuit elements of substantially different characteristics must be formed and an array top oxide (ATO) is used to separate connections from such circuit elements and several techniques for forming an ATO (e.g. top oxide early (TOE), top oxide nitride (TON) and top oxide late (TOL)) are known. Since such connections must be formed at high density and close proximity it is desirable to planarize the ATO with high accuracy (e.g. 15 nm) to support lithographic exposure for formation of such connections. All of the known techniques for forming an ATO have characteristics which compromise planarization and/or lead to the production of various types of defects that compromise manufacturing yield. In particular, for good planarization, the surface to be planarized must not exhibit severe topography (see paragraph [0008]) and must be planar and of substantially uniform thickness for planarization to be successfully carried out to the required tolerances. In this regard, the inventors have discovered that differences in height (e.g. step height) of structures in and between different areas (e.g. between the array and support areas) of a chip are of particular importance in whether or not required planarization tolerances are achieved (see, for example, paragraphs [0046] and [0047]). Therefore control of step height or equalization of height is recited in independent claim 1 and, for example, dependent claims 14 and 20.

Other independent claims 12 and 16 are directed to a new planarization technique which is free from some artifacts of chemical mechanical polishing such as scratching which is aggravated by excessive thickness of material to be planarized which is, in turn, a function of the severity of topography of the surface to which the material to be planarized is applied. This planarization technique involves application

of a material which tends to form a substantially planar surface and then non-selectively etching from that surface. However, the planarity of the surface so formed can be compromised and particular types of defects engendered by severe topology of the surface to which the material is applied.

Errors and Omissions

The basic grounds of rejection of claims 1 - 4, 7 - 12 and 14 - 20 (including all independent claims in the application) asserted by the Examiner are under 35 U.S.C. §102 and based on Hummler 6,620,677 which is incorporated by reference in the present application as disclosing a TOE process. Other grounds of rejection of claims depending from these claims assume the anticipation of the subject matter of these claims by Hummler to be correct.

Hummler discloses *optionally* recessing of isolation structures by a distance preferably equaling one-half of the thickness of pad nitride 14 or by a distance of 110 to 400 Angstroms (column 5, lines 48 - 65). This recess allows a portion of the support liner 42/54 to remain over the isolation structures (see column 7, lines 13 - 30) to protect the height thereof during other processing. Hummler also discloses using a planarizing anti-reflective coating (ARC) followed by a reactive ion etch (RIE) “to remove portions of the insulating material 50 and the support liner 54 residing on the pad nitride 54 (sic) in the support regions” (column 7, lines 7 - 9) but does not indicate that the resulting surface is thus planarized or even that the RIE is non-selective; a necessary condition disclosed in the present application for planarization to result.

In the final rejection of April 3, 2007 and, particularly, in the Advisory Action mailed June 26, 2007, it is clear that the Examiner is according no weight to numerous recitations of the claims. The comments appended to the Advisory Action are substantially directed to an attempt to justify such a position. However, it is respectfully submitted to be well-established that for anticipation to be shown, *every recitation of the claim must be answered by disclosure of a single document*. Alternatively put, the reference must teach the invention with all the particularity recited in the claims. The Examiner takes the position that the purpose and ultimate result of the recessing in the manner claimed (e.g. “to control *step* height in said first and second areas” (claim 1); “etching structures of said second average height to an

average height substantially equal to said first average height” (claim 14) or “adjusting height of a structure on a differentiated area...” or the performance of a “*non-selective* etching from a substantially planar surface” (claims 12 and 16) is irrelevant to the propriety of a rejection for anticipation even though appearing to tacitly acknowledge that the teachings, suggestions and evidence of the level of ordinary skill in the art which can be derived from Hummler would be clearly inadequate to support a similar rejection based on 35 U.S.C. §103. It is respectfully submitted to be illogical and clearly improper for the Examiner to ignore explicit recitations which the reference does not answer in a rejection for anticipation, particularly under circumstances where a similar ground of rejection under 35 U.S.C. §103 would be clearly improper. The Hummler reference clearly does not address the explicit recitations of the claims noted above since the Examiner has admitted that certain recitations have been given no patentable weight and thus effectively ignored and thus Hummler does not, in fact, anticipate any claim in the application.

Simply put, the Examiner has clearly and admittedly failed to demonstrate that Hummler discloses the *invention* with all the particularity recited in the claims. Moreover, the Examiner has not asserted that Hummler or any of the secondary references applied against other claims under 35 U.S.C. §103 mitigates the deficiencies of Hummler in any way and thus the Examiner has clearly failed to make a *prima facie* demonstration of obviousness of any claim in the application. Therefore, it is respectfully submitted that the position taken by the Examiner in all asserted grounds of rejection is clearly in error and untenable and the Examiner’s efforts to justify such asserted grounds of rejection even more clearly indicate the impropriety thereof.

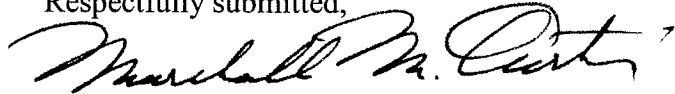
Conclusion

Since there are features explicitly recited in each of the claims which are absent from the references relied upon and which recitations the Examiner has explicitly admitted to have been given no patentable weight while improperly maintaining various grounds of rejection thereof, particularly under 35 U.S.C. §102, no combination of the references would provide the recited features by which the invention is defined and which support its meritorious effects, not available from Hummler taken alone or in any combination with secondary references applied, it is

respectfully submitted that all grounds of rejection of record are clearly in error and untenable and should be withdrawn. It is improper for the Examiner to ignore or accord no patentable weight to any explicit recitation of the claims which reasonable serves to define the invention and to distinguish it from the prior art, particularly in a rejection for anticipation under 35 U.S.C. §102 and then to continue to ignore or accord no patentable weight to such recitations under 35 U.S.C. §103 where the secondary reference are not even asserted to mitigate the deficiencies of Hummler. In view of the foregoing, it is requested that the position taken by the Examiner be reviewed, that the asserted grounds of rejection be withdrawn, and that the application be allowed at an early date.

A petition for a one-month extension of time has been made above. If any further extension of time is required for this paper to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 09-0458 of International Business Machines Corporation (East Fishkill).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Marshall M. Curtis", with a stylized flourish at the end.

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